

Claims

1. A fuel injection system for internal combustion engines, having a fuel injector (26) that can be acted upon by a high-pressure fuel source (2, 43), and having a pressure booster (13) that has a movable pressure boosting element (14), which pressure booster is disposed between the fuel injector (26) and the high-pressure source (2, 43), which divides a work chamber (15), which can be made to communicate with the high-pressure source (2, 43) via a high-pressure line (3), from a high-pressure chamber (17) that acts upon the fuel injector (26), and the fuel pressure in the high-pressure chamber (17) can be varied by filling a differential pressure chamber (16) of the pressure booster (13) with fuel and evacuating the differential pressure chamber (16) of fuel, characterized in that a filter element (5) is connected upstream of at least one pressure chamber (16) of the pressure booster and upstream of flow conduits (10, 20, 23; 42, 44) for filling at least one pressure chamber (16, 17) of the pressure booster (13).

2. The fuel injection system of claim 1, characterized in that fuel from the high-pressure source (2, 43) enters the work chamber (14) of the pressure booster (13) via a high-pressure line (3), without passing through a filter element (5).

3. The fuel injection system of claim 1, characterized in that the line portion (4) containing the filter element (5) changes over into flow conduits (10, 20, 23) for filling

the differential pressure chamber (16) and the high-pressure chamber (17) of the pressure booster (13).

4. The fuel injection system of claim 3, characterized in that during the restoration phase of the pressure boosting element (14), filtered fuel flows into the high-pressure chamber (17) to replenish it via the first flow conduit (10) that contains a check valve (11).

5. The fuel injection system of claim 3, characterized in that during the restoration phase of the pressure booster (14), the differential pressure chamber (16) can be filled with filtered fuel via the second and third flow conduits (20, 23).

6. The fuel injection system of claim 5, characterized in that the second flow conduit (20) includes a filling valve (6).

7. The fuel injection system of claim 5, characterized in that the third flow conduit (23) includes a throttle restriction.

8. The fuel injection system of claim 1, characterized in that the volumetric flow of fuel that flows through the line portion (4) that contains the filter element (5), and from one-

fifth (1/5) to one-twentieth (1/20) of the fuel flow flowing in the high-pressure line (3) flows in the line portion (4) that contains the filter element (5).

9. The fuel injection system of claim 1, characterized in that the line portion (4) that contains the filter element (5) acts as the supply line to a switching valve (21), which communicates with an overflow line (42) that discharges into the differential pressure chamber (16) of the pressure booster (13).

10. The fuel injection system of claim 9, characterized in that a filling line (44) for filling a control chamber (29) of the fuel injector (26), which line includes a throttle restriction (30), extends from the differential pressure chamber (16).

11. The fuel injection system of claim 10, characterized in that a refilling branch (45) that includes a throttle restriction (31) extends from the filling line (44) to the high-pressure chamber (17) of the pressure booster (13).

12. The fuel injection system of claim 10, characterized in that control volume positively displaced by the injection valve member (28) flows out of the control chamber (29) into the differential pressure chamber (16) via the filling line (44) when the pressure booster (13) is in the activated state, and into the control chamber (29) when the pressure booster (13) is in its position of repose.